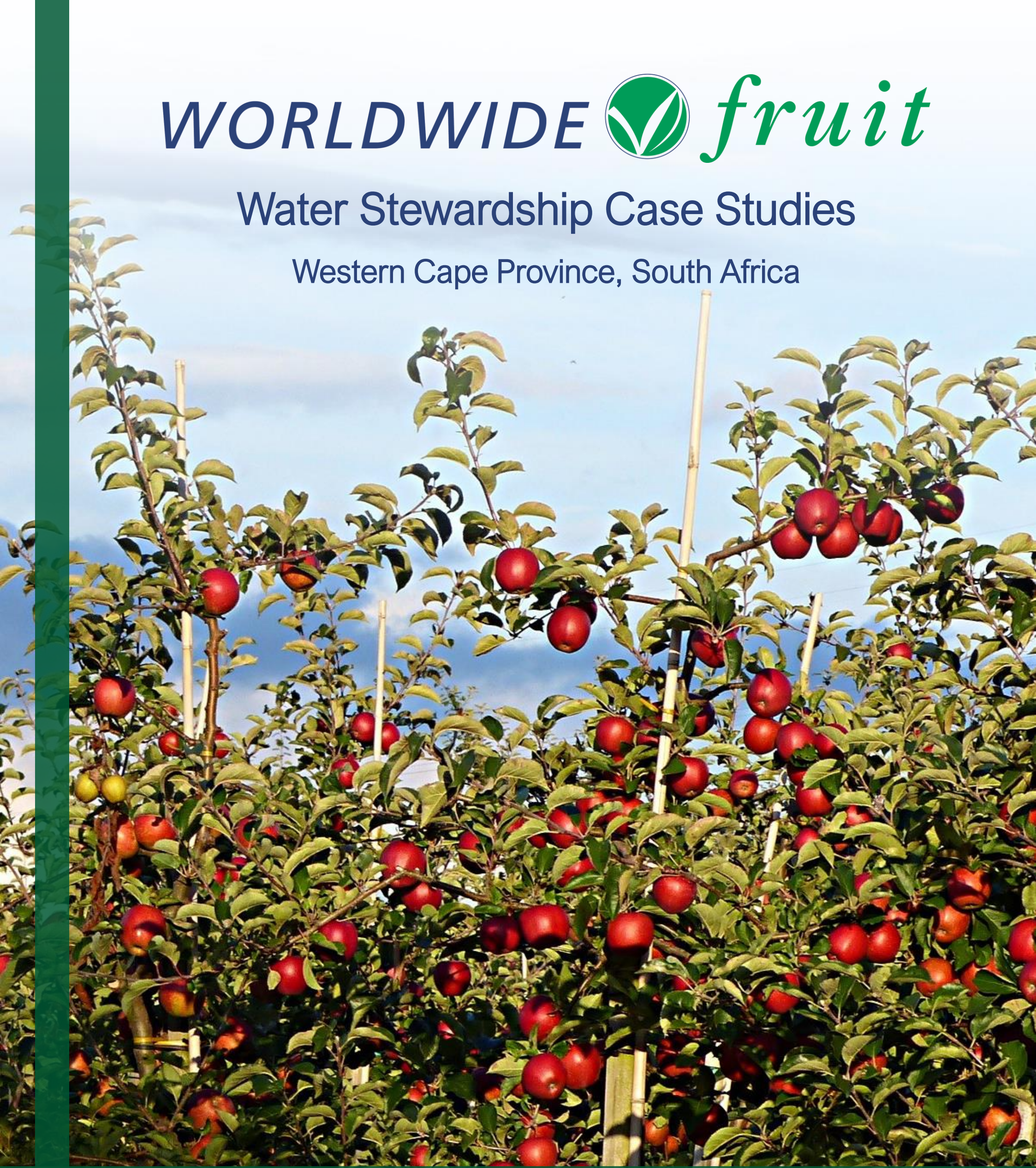
WORLDWIDE fruit

Water Stewardship Case Studies

Western Cape Province, South Africa



Case Study 1:

Boomerang Fruits

BLUE NORTH
THINKING. FUTURE

Report compiled by Blue North Sustainability

Worldwide Fruit Limited are investing in Water Stewardship across their supply-base and will be presenting 12 Water Stewardship case studies from supplying farms over the next 12 months. Their aim is to raise awareness of the challenges that South African growers deal with on a daily basis. Water management challenges and the solutions implemented to overcome them will be explored, but we will also see how growers are driving ongoing good management of water resources. Apart from water, case studies will also look at current sustainability strategies implemented and plans for improving sustainability into the future.

The picturesque Elgin Valley can be found in the mountainous Overberg region of South Africa. This broad upland valley lies about 70 km southeast of Cape Town, just beyond the Hottentots Holland Mountains. The Elgin Valley is an intensively farmed district and produces about 60% of the national apple crop. Internationally, it is known as the place in South Africa “where the apples come from”. The Elgin valley, renowned for its apple and pear orchards, is also increasingly becoming known for the production of high quality, cool climate wines.

Boomerang Fruits consists of a number of farms and is based in the Elgin Valley. This commercial company, owned by James Strachan and his wife, grow, pack and export quality top fruit. The Strachans own two of their own export companies, with their export markets in the UK and the far east. The family has been around for quite a long time in the Elgin area, as farming started in 1952. All of their farming practices are geared to produce world class fruit through environmentally sound and advanced farming practices, resulting in high quality sustainable production.

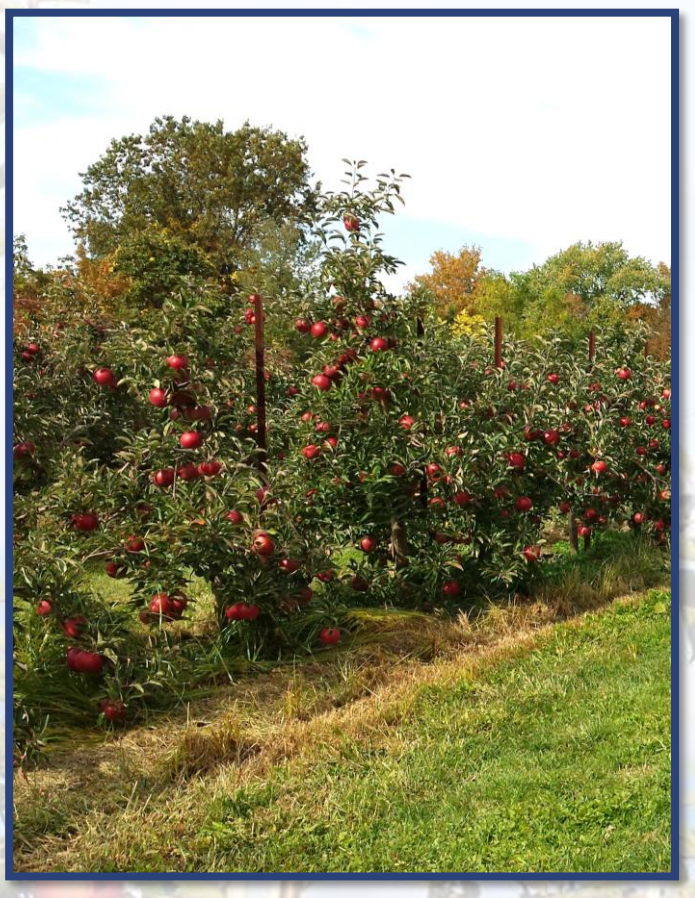
We had conversations with James Strachan, owner of Boomerang Fruits, to learn more of the challenges, successes, or failures they have experienced as a business, and what their plans into the future include.

Boomerang's sustainability journey

"We are not just here today, we are here for tomorrow and into the future, so whatever we do, we do it on a sustainable basis."

Boomerang is very focussed on their commercial element, but also the environmental element. They have an amazing diversity of naturally occurring animals on the farms, from Jackal Buzzards to various kinds of buck, leopards, baboons, spotted genets and even caracal. They also have a no kill approach on snakes. These animals help to keep the ecosystem in balance, for example, the Jackal Buzzards and snakes keep the field mice population in check. If it were not for them, Boomerang would probably have had to use some form of product to control the mice population themselves.

Photo: Derek Keats, Jackal buzzard, CC BY 2.0



Boomerang also encourages grass species to develop. This promotes microbial activity, especially in winter, and creates organic mulches for their orchards, which boosts soil organic carbon and increases the soil's water retention ability and reduces soil compaction.

When it comes to Boomerang's staffing models, they run a sustainability-based management program, where they can cover both productivity issues as well as social relation issues.

From a farming perspective, Boomerang are continuously looking for varieties that are more suited to the South African environment. For example, they would look at new varieties that are more adapted to temperature or require less chemicals and they are currently busy with a couple of varieties that will result in their production being semi-green. These varieties will require only basic fungicidal treatments, between 20-30% of what they normally apply, possibly up to 0% in some new varieties, allowing them to go semi-organic on certain products.

Boomerang's water story

Where does your water come from?

"In the Elgin valley, we are riparian farm owners, and our water comes from the rivers running from the mountain into our dams."

CapeNature is a governmental institution responsible for maintaining nature reserves and protecting biodiversity in the Western Cape.

Boomerang's water is predominantly winter based, and they also have quite a lot of water flowing back out into the river beds during winter. Above the farms is a World Heritage site, a fynbos belt that is part of CapeNature.

Within the Elgin area you also have the Groenland water irrigation scheme, which is the only large privately owned water irrigation scheme in the country. This is approximately 20 km from Boomerang's farms, and they have a certain amount of cubic meters of water they get from there.

"On average, every year we use about 50-60% of our water."

Do you have difficulties with Invasive Alien Plants?

"On the farms, we annually manage aliens ourselves. We do continuous alien cutting, especially in the river beds and ground that is prone to seeding. We cut down and paint the stems with a systemic product containing a dye colourant to see what we've done until the natural bush can take over again. But luckily we don't have any significant problems with aliens anymore." CapeNature looks after the surrounding region.

In South Africa, an estimate of 1.44 billion m^3 of water is lost to invasive plants annually. To put it in perspective, this amount of water loss is enough to provide 3.38 million households with four inhabitants with water for a year, or to irrigate 120 000 hectares of cropland - WWF (2016) Water: Rethinking South Africa's Water Future. WWF-SA Report

Boomerang's water story

Tell us about your irrigation system?

"There are a variety of irrigation systems on the market. We use micro irrigation."

Drip irrigation is a type of micro irrigation, but it does not work well in the Elgin region as most farms are very hilly and you would get pressure related problems that are not sustainable - overwatering at the bottom of the hills and underwatering at the top of the hills. Boomerang have moved to short range irrigation models a couple of years back, which concentrate the water at the root zone of the tree, not into what is called the tractor rows. They couple that with water monitoring devices, which measure the moisture content every 10 cm, from 0 all the way down to 80 cm. It also measures the soil temperature and the root activity of the trees. For example, if they plant a new orchard, they will know to focus on the 0-30 cm region and will not try to irrigate up to 80 cm. On their older trees, just after winter, they would also for example notice that the 0-40 cm region might require water, but not the 50-80 cm region, meaning that they could do shorter irrigation spurts.

By using probes, Boomerang can also look at the water they have provided and know how efficient it has been. For example, if they find that a one-hour irrigation cycle is creating saturation, they will immediately reduce that on the next cycle and vice versa. Or, if they do not get the depth of water they need, they would move to a night irrigation system with no evaporation.

In terms of varieties, Boomerang says that you will not necessarily find varieties that use less water, but what they also do is to try and maximise production from the early part of the year right through to the end of the season. The advantage of early variety development is that once your fruit is off, you can immediately cut your water down to 50%. Some of Boomerang's varieties were already harvested in week 2, in January. Those varieties currently consist of 10% of their farming area, and by the end of January 20-25% of their farm will be on 50% water, compared to if they had those as mid to late season varieties.

"This also gives one sustainability in using infrastructure over a longer period of time, in addition to creating jobs for our people, which are the most important."

"These systems have made quite a difference in the amount of water that we irrigate."

Boomerang's water story

Do you think there is room for improvement?

"There is always room for improvement. I think that at the moment we are applying the right sciences and we understand our system. You can have a system and not understand it. We do not use outside companies to interpret our systems; we interpret it ourselves every 24 hours."

What Boomerang would like to get to in future, is to a system that creates its own automated watering program. Currently it is all done manually, where they manipulate their planning every single day. Before the teams leave at 07:00 in the morning, they have been given their watering instructions, hour for hour, block for block. They have about six sections that irrigate at the same time, all within exact time frames.

Boomerang & Climate Change

Are you concerned about coping with or adapting to climate change?

"I think climate change for us is more of a global reality than an area reality. My concern, not necessarily in the Elgin area, but from a global perspective, in terms of water, is for future generations. They will definitely be at risk if things do not change sooner rather than later. So in terms of risk in our area, we don't currently see an immediate or medium term risk, but that doesn't mean that we should not keep our eyes open. Within our specific area, we cannot waste water, that's important."

Any renewable resources for electricity on the farms?

Boomerang has solar panel units for their packing and cold storage facility, which make up a large portion of their electricity usage. They have plans to grow their cold storage and with that plans to add more solar panels. Unfortunately solar is not a perfect solution, as a lot of water pumping happens at night. Boomerang uses Eskom electricity to run their pumps, but their Eskom accounts are relatively low since about 50% of their water runs through gravity due to dams sitting mostly at the top of the farms.

Eskom is South Africa's 100% state-owned electricity utility who relies on coal fired power stations to produce approximately 90% of its electricity. Eskom uses over 90 million tons of coal/year (www.eskom.co.za) and emits more than 40% of South Africa's total GHG emissions.

Boomerang's final thoughts ...

The Elgin area has been blessed that they have never had a shortage of water on their farms, even with the drought in Cape Town and other areas in the Western Cape. During the worst of the drought, the Groenland Irrigation scheme donated huge amounts of water to the City of Cape Town. The farm systems in the Elgin area are also very well designed so they can use water optimally.

"I think the big thing is to protect our water in the Elgin area. We don't have water to waste, even if we end the season with 40-50% water capacity, we always have to plan for worst case scenario. Our water is very important to us."